



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

*University Village, Nnamdi Azikiwe Expressway, Plot 91, Cadastral Zone, Jabi, Abuja*

**Faculty of Agricultural Sciences**

*POP Exam Question 1 2021\_2*

**Course Title: Elementary Topics in Animal Breeding**

**Course Code: ANP 307**

**Credit Unit: 2**

**Time Allowed: .2 Hours**

**INSTRUCTION:**

**Answer Compulsory question 1 (25 marks) and any 3 questions (15 marks each)**

**Question One**

a) Define the following terms:

- i. Gene
- ii. Allele
- iii. Genotype
- iv. Phenotype
- v. Dominant
- vi. Recessive
- vii. Hybrid.
- viii. Homozygote
- ix. Heterozygote **9 marks**

b) Highlight three(3) reasons why Robert Bakewell is considered the founder of systematic modern breeding **3 marks**

c) Outline five (5) challenges in breeding animals for disease resistance **10 marks**

d) State three (3) advantages of breeding animals for disease resistance **3 marks**

**Question Two**

a) Define Genetics and Punnet squares **2 marks**

b) State three (3) reasons why Mendel's research work is unique compared to the other early theories **3 marks**

c) State four (4) the implications of Mendel's work **4 marks**

d) Outline three (3) differences between Monohybrid and Dihybrid crosses **6 marks**

### Question Three

- a) Mention five (5) differences between the X-Y and X-0 systems of sex determination? **10 marks**
- b) Briefly explain five (5) ways to manage lethal genes in a dairy herd **5 marks**

### Question Four

- a) Give six (6) differences between quantitative and qualitative traits **12 marks**
- b) Define the following terms mean, variance and standard deviation **3 marks**

### Question Five

- a) Define segregation. **1 mark**
- b) Give the meaning of penetrance and expressivity. **4 marks**
- c) Explain the two (2) methods of estimating heritability. **6 marks**
- d) State two (2) properties of heritability. **4 marks**

### Question Six

- a) What is the implication of high and low repeatability in animal breeding? **4 marks**
- b) State the explanation of inheritance by
  - i. Hippocrates
  - ii. Aeschylus,
  - iii. Microscopist Anton van Leeuwenhoek **6 marks**
- c) Explain Genetic Source of Variation **5 marks**